

REMARKS

Claims 1-7 and 9-16 are pending in the present application after this amendment cancels claim 8 and adds new claims 15 and 16. Claims 1, 2, 8, and 11-13 are amended by this amendment. No new matter is added by the amendments and new claim, which are supported throughout the specification and figures. In view of the amendments and the following remarks, favorable reconsideration of this case is respectfully requested.

Applicants note with appreciation that the Examiner indicates that claims 5-7 and 9 are allowed, and that claims 11 and 12 are allowable. Claims 11 and 12 are amended herein into independent form, and therefore these claims are also in condition for allowance.

Claims 1, 2, 3, 10, 13, and 14 stand rejected under 35 U.S.C. §102 (a) as being unpatentable over Applicant's Allegedly Admitted Prior Art (hereinafter AAAPA). Applicants respectfully traverse.

Claim 1 relates to a quadrature modulator that includes, *inter alia*, a frequency conversion block for converting the oscillation frequency to output a converted oscillation frequency; and a quadrature modulation block for receiving a baseband signal and the converted oscillation frequency. The quadrature modulation block of claim 1 includes a first frequency divider for dividing the converted oscillation frequency by a factor of two to output a pair of orthogonal signals having therebetween a phase difference of 90 degrees, first and second multipliers for modulating the pair of orthogonal signals with the baseband signal to output a pair of modulated signals, and an adder for adding the modulated signals together to output a carrier signal. In the quadrature modulator of amended claim 1, ***the carrier signal has a frequency different from the converted oscillation frequency.***

The Examiner asserts that the highlighted feature of claim 1 is disclosed in the AAAPA on pages 3 and 4 of the specification. The description of figure 3 on these pages, from page 3, line 17 to page 4, line 16, apparently discloses a local oscillator having a frequency being divided, mixed, and filtered and added to a digital signal to produce an output signal. However, the specification also indicates that the quadrature modulator of figure 3 provides an input frequency of the frequency doubler 250 *equal* to the frequency of the output carrier signal delivered through the transmission antenna, and as also shown in figure 5. (Specification; page 8, lines 16-19). Therefore the AAAPA does not disclose the carrier signal being different from the converted oscillation frequency, and therefore the AAAPA does not anticipate claim 1.

A feature of amended claim 1 is that the carrier frequency is different from the frequency of the output from the frequency conversion block. An advantage of the present invention is that, because the carrier frequency is different from the output frequency of the frequency conversion block, the configuration prevents the output signal of the conversion frequency block from being affected by the feedback of the carrier frequency signal which is delivered from the antenna. In this manner, the modulation accuracy of the quadrature modulator is improved. The AAAPA does not have the features of the present invention, and does not thereby reduce the influence to the output signal of the frequency conversion block by the carrier frequency signal. Therefore, for at least this reason claim 1 is allowable.

Amended claim 2 and claims 3 and 10 ultimately depend from claim 1 and are therefore allowable for at least the same reasons as claim 1 is allowable.

Claim 13 relates to a method that includes, inter alia, generating an oscillation frequency and converting said oscillation frequency to output a converted oscillation frequency. In the

method of amended claim 13, the carrier signal has a frequency different from the converted oscillation frequency.

As discussed above, it is respectfully submitted that the AAAPA does not disclose or suggest that the carrier signal has a frequency different from the converted oscillation frequency. Therefore, for at least this reason claim 13 is allowable.

Claim 14 depends from claim 13 and is therefore allowable for at least the same reasons as claim 13 is allowable.

Claim 4 stands rejected under 35 U.S.C. §103 (a) as being unpatentable over AAAPA in view of United States Patent No. 6,011,962 to Lindenmeier (hereinafter Lindenmeier).

Applicants respectfully traverse.

Claim 4 depends from claim 1 and is therefore allowable for at least the same reasons as claim 1 is allowable.

Claim 8 stands rejected under 35 U.S.C. §103 (a) as being unpatentable over AAAPA in view of United States Patent No. 3,644,827 to Landefeld (hereinafter Landefeld). The cancellation of claim 8 obviates this rejection.

New claim 15 depends from claim 1, and new claim 16 depends from claim 13, and therefore these claims are allowable for at least the same reasons as their respective base claims are allowable.

Additionally, new claims 15 and 16 each recite the feature that the carrier frequency is different from the oscillation frequency generated by the local oscillation frequency. An advantage of the present invention is that, because the carrier frequency is different from the oscillation frequency and the output frequency of the frequency conversion block, the configuration prevents the output signal of the conversion frequency block from being affected

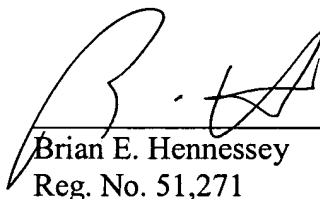
by the feedback of the carrier frequency signal which is delivered from the antenna. In this manner, the modulation accuracy of the quadrature modulator is improved. The AAAPA does not have the features of claims 15 and 16, and does not reduce the influence to the output signal of the frequency conversion block by the carrier frequency signal. Therefore, for at least this reason claims 15 and 16 are allowable.

CONCLUSION

In view of the remarks set forth above, this application is believed to be in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,



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